

Curriculum Vitae

DR. AMIT KUMAR PRADHAN

Assistant Professor

Department of Botany

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Specialization: **Plant Molecular Biology and Biochemistry**



Employment: Assistant Professor in Botany Pragjyotish College Since 18th February, 2019

Educational Qualification:

Exam/Degree	Year	Institution	University/Board	Percentage (%)
Ph.D.	2023	Department of Botany	Gauhati University	
M.Phil.	2018	Department of Botany	Gauhati University	
M.Sc. Life science (Botany)	2016	Department of Life science and Bioinformatics	Assam University	79 (CGPA 7.96)
B.Sc. Botany	2014	Birjhora Mahavidyalaya, Bongaigaon	Gauhati University	76.20 (CGPA 8.3)
HSSLC (10+2)	2010	Anundoram Borooh Academy, Pathsala	AHSEC	75.20
HSLC (10)	2008	Don Bosco School, Bengtol	SEBA	80.33

Qualifying Examination for Lectureship-

- State Level Eligibility Test (SLET), Assam (Northeast Region) 2017 – Life Science (Roll No. 1704321310)
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Masters' dissertation (1 year: July, 2015- June, 2016):

Title- Studies on Acid stress Tolerance in Plants (*Oryza sativa* L. and *Vigna mungo* (L.) Hepper) with special emphasis on Aluminium (Al^{3+}) toxicity and Role of Phosphorous.

Research work focused on physiological screening, histochemical analysis of plants and sqRT-PCR analysis of different genes under Al^{3+} stress and Al-P interaction conditions (<https://doi.org/10.1371/journal.pone.0176357>).

Supervisor: Prof. Sanjib Kumar Panda, Department of Life Science and Bioinformatics, Assam University, Silchar, Assam, India

M.Phil. (September, 2017- December, 2018):

Title- Morpho-physiological responses in some traditional rice cultivars of Assam under aluminium toxicity and phosphorous deficiency in acidic condition.

Research work focused on morphological and physiological responses in the primary site of aluminium toxicity *i.e.*, roots. The responses were investigated based on the root growth, histological analysis, electron microscopy, ICP spectroscopy and real time gene expression (<https://doi.org/10.1007/s11738-022-03509-0>).

Supervisor: Prof. Bhaben Tanti, Department of Botany, Gauhati University, Guwahati, Assam, India

Ph.D. (September, 2018- July, 2023):

Title- Candidate gene-based association mapping of yield and its component traits in boro rice cultivars of Assam, India.

Research work focused on phenotypic and genotypic analysis of boro rice cultivars using association mapping and identification of QTL/ genomic regions responsible for high yield and higher performance of component traits. (<https://doi.org/10.1007/s10722-022-01533-0> ; <https://doi.org/10.1007/s42535-022-00426-y>).

Supervisor: Prof. Bhaben Tanti, Department of Botany, Gauhati University, Guwahati, Assam, India

Activities

Publications:

1. Awasthi JP, Saha B, Regon P, Sahoo S, Chowra U, **Pradhan A**, et al. (2017) Morpho-physiological analysis of tolerance to aluminum toxicity in rice varieties of North East India. PLoS ONE 12(4): e0176357. <https://doi.org/10.1371/journal.pone.0176357>.
2. Kalita, J., **Pradhan, A. K.**, Shandilya, Z. M., & Tanti, B. (2018). Arsenic stress responses and tolerance in rice: physiological, cellular and molecular approaches. Rice Science, 25(5), 235-249. <https://doi.org/10.1016/j.rsci.2018.06.007>
3. **Pradhan, A. K.**, Shandilya, Z. M., Lahkar, L., Hasnu, S., Kalita, J., Borgohain, D., & Tanti, B. (2019). Comparative Metabolomics Approach towards Understanding Chemical Variation in Rice under Abiotic Stress. In Advances in Rice Research for Abiotic Stress Tolerance (pp. 537-550). Woodhead Publishing. Elsevier ISBN: 9780128143322
4. **Pradhan, A. K.**, Kalita, J., Lahkar, L., Gurung, L., Ghritlahre, S. K., & Tanti, B. (2020). Stress Management in Crops by Utilizing Landraces: Genetics and Plant Breeding Perspective. In Sustainable Agriculture in the Era of Climate Change (pp. 1-21). Springer, Cham.
5. **Pradhan, A. K.**, Rehman, M., Saikia, D., Jyoti, S. Y., Poudel, J., & Tanti, B. (2020). Biochemical and Molecular Mechanism of Abiotic Stress Tolerance in Plants. In Plant Ecophysiology and Adaptation under Climate Change: Mechanisms and Perspectives I (pp. 825-853). Springer, Singapore.
6. **Pradhan, A. K.**, Jyoti, S. Y., Shandilya, Z. M., Rehman, M., Saikia, D., Poudel, J., ... & Tanti, B. (2021). Dissecting the Molecular Basis of Drought-Induced Oxidative Stress Tolerance in Rice. Molecular Breeding for Rice Abiotic Stress Tolerance and Nutritional Quality, 249-273.
7. Rehman, M., Jyoti, S. Y., **Pradhan, A. K.**, Regon, P., & Tanti, B. (2021). Characterization of boro rice (*Oryza sativa* L.) varieties of Assam (India) based on their morphological traits. Int J Bot Stud, 6(5), 1051-1062.
8. Regon P, Dey S, Rehman M, **Pradhan AK**, Chowra U, Tanti B, Talukdar AD and Panda SK (2022) Transcriptomic Analysis Revealed Reactive Oxygen Species Scavenging Mechanisms Associated with Ferrous Iron Toxicity in Aromatic Keteki Joha Rice. Front. Plant Sci. 13:798580. <https://doi.org/10.3389/fpls.2022.798580>
9. **Pradhan, A.K.**, Vemireddy, L.N.R. & Tanti, B. Assessment of the genetic variability and population structure in boro rice cultivars of Assam, India using candidate gene based SSR markers. Genet Resour Crop Evol 70, 1747–1765 (2023). <https://doi.org/10.1007/s10722-022-01533-0>
10. **Pradhan, A.K.**, Tanti, B. Evaluation of the potential yield and associated component traits of lowland Boro rice cultivars in Assam, India. Vegetos 36, 453–463 (2023). <https://doi.org/10.1007/s42535-022-00426-y>
11. **Pradhan, A.K.**, Shandilya, Z.M., Sarma, P. et al. Concurrent effect of aluminum toxicity and

phosphorus deficiency in the root growth of aluminum tolerant and sensitive rice cultivars. *Acta Physiol Plant* 45, 33 (2023). <https://doi.org/10.1007/s11738-022-03509-0>

12. Sarma Kalita, Sharmistha & Das, Mami & Kalita, Indrajit & **Pradhan, Amit**. (2023). Exploring the regulatory potential of zinc oxide nanoparticles for alleviating abiotic stress in crop plants. *International Journal of Botany Studies*. 8. 30-35.
13. Sarma Kalita, Sharmistha & Kalita, Indrajit & Pradhan, Amit. (2023). Genome editing: A sustainable approach to improving crop productivity and mitigating biotic and abiotic stresses in response to climate change. *International Journal of Botany Studies*. 8. 36-40.

Seminar Paper Presented:

1. **Pradhan, A. K.**, and Panda, S.K. (2018). Studies on Acid Stress Tolerance (Aluminium) in Rice (*Oryza sativa* L.) and its interaction with Phosphorous. Paper presented at International Conference on Functional Plant Biology at Assam University, Silchar, Assam on 23rd January, 2017.
2. **Pradhan, A. K.**, and Tanti, B. (2018). Morpho-Physiological changes in some traditional rice cultivars of Assam, India in low pH condition under aluminium toxicity and phosphorous deficiency. Paper presented at National Conference on Bio resources for Sustaining Life and Livelihoods in North-East India organized by Department of Zoology, Nowgong College, Nagaon Assam in association with Institutional Advanced Level Biotech Hub and Zoological Society of Assam, Gauhati University on 4th and 5th October, 2018.
3. **Pradhan, A. K.**, and Tanti, B. (2017). Phylogenetic relationships of morphologically different three plants of *Brucea mollis* wall. Ex Kurz based on matK sequence analysis. Paper presented at National seminar on Socio-Economic and Scientific development in Northeast India: Problems and Prospects organized by Arya Vidyapeeth College Teachers Unit in association with ICSSR-NERC, NEC Govt. of India at Arya Vidyapeeth College on 27th-28th October, 2017.
4. **Pradhan, A. K.**, and Tanti, B. (2017). Phylogenetic analysis of the aroma producing gene (*BADH*) in rice (*Oryza sativa* L.). Paper presented at 7th Symposium of the DNA society of India organized by IASST, Guwahati on 17-18th November, 2017.
5. **Pradhan, A. K.**, and Tanti, B. (2022). Effect of Variable Component Traits in the Potential Yield of Boro Rice (*Oryza sativa* L.) Cultivars. Paper presented at 11th Annual University Research Symposium (URS) Hybrid organized by The University of West Alabama Livingston, AL, United States of America (USA) on March 8-9, 2022. Awarded 2nd best presentation award.

6. **Pradhan, A. K.**, and Tanti, B. (2022). Analysis of the Relationship Between Variable Component Traits in the Potential Yield of Boro Rice (*Oryza Sativa* L.) Cultivars Of Assam, India. 9th INTERNATIONAL CONFERENCE ON AGRICULTURE, ANIMAL SCIENCES AND RURAL DEVELOPMENT March 19-20, 2022 Burdur Mehmet Akif Ersoy University Burdur, Turkey.

Seminars/ Workshops/ Faculty Development Programme/ Refresher Course attended or conducted

1. One-Week Online Faculty Development Programme (FDP) organized by IQAC of Dr. R.K.B. Law College, Dibrugarh, Assam in collaboration with Skillfinity & academic support from Teaching Learning Centre, Tezpur University from 22nd to 28th June, 2020 (attended).
2. UGC Sponsored 30th Orientation Course organized by HRDC Centre, Mizoram University from 28th July to 17th August, 2020 (attended).
3. One-week Online Training Programme on e-Learning in Higher Education Organised by IQAC, Pandu College, Guwahati In Association with Rabindranath Tagore University, Hojai & Indian Association of Special Libraries and Information Centres, NE Zone from JULY 1-7, 2020 (attended).
4. Conducted webinar on 'Basic Concept of Bioinformatics and its necessity in Modern Day Science' and 'Application of Bioinformatics in Advanced Scientific Study' organized by the Dept. of Botany and IQAC Birjhora Mahavidyalaya, Bongaigaon from 21st to 24th July 2020 (Resource Person).
5. Five days online Faculty Development Programme on "Research Methodology and Project Writing" Organized by Institutional Development Plan (IDP, OHEPEE) Cell of Rama Devi Womens University, Vidya Vihar, Bhubeneswar, Odisha held during 07-11th July, 2021 (attended).
6. Ten days online workshop on "Molecular Data Analysis through Bioinformatics Tools" from 01-11-2021 to 10-11-2021 organized by Department of Molecular Biology and Biotechnology, SV Agricultural College, ANGRAU, Tirupati (attended).
7. AICTE Training and Learning (ATAL) Academy Online Elementary FDP on "Genome Engineering for Environment" from 23/08/2021 to 27/08/2021 at Indian Institute of Technology Guwahati (attended).
8. "ONLINE TWO - WEEK INTERDISCIPLINARY REFRESHER COURSE in "ADVANCED RESEARCH METHODOLOGY" from 22 AUGUST– 05 SEPTEMBER, 2022 Teaching Learning Centre, Ramanujan College University of Delhi In collaboration with Government College (Autonomous), Rajahmundry Y. Junction, Rajamahendravaram, Andhra Pradesh under the

aegis of MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING"

9. Two days online workshop on "Scanning Electron Microscopy: Technique and its Applications" organized by North East Centre for Biological Sciences and Healthcare Engineering, Indian Institute of Technology Guwahati, Assam in collaboration with Zeiss India, with support of Department of Biotechnology, Govt. of India as part of Azadi ka Amrit Mahotsav.
10. Participated in National Intellectual Property Awareness Training Program as part of the National IP Festival organised by O/o CGPDTM and CSIR under Azadi Ka Amrit Mahotsav from 1st to 31st July, 2023.
11. ONE WEEK FACULTY DEVELOPMENT PROGRAMME ON E-LEARNING (LMS, MOOCs and ERP), organised by Pragjyotish College in collaboration with COREXX, during 13th February to 21st February, 2023, at Pragjyotish College, Guwahati – 781 009, Assam.
12. UGC Approved Short Term Professional Development Programme Under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching on 'Implementation of NEP2020 for University and College Teachers' organized by INDIRA GANDHI NATIONAL OPEN UNIVERSITY Staff Training and Research Institute of Distance Education New Delhi 110068 held from 12th to 20th June, 2023 (attended).
13. "Online Two – Week Refresher Course in "BOTANY" from 29 July - 13 August, 2023 Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING" (attended).
14. Four Months Online Certificate Course on 'Climate Resilient Agriculture' 2023 organized by Department of Agricultural Biotechnology Assam Agricultural University, Jorhat (attended).

Academic Responsibilities

1. SPOC, Swayam NPTEL Local Chapter Pragjyotish College (ID:6132)
2. IQAC Core Committee member
3. Co-Ordinator NIRF Committee Pragjyotish College
4. Convener Website monitoring committee



(Dr. Amit Kumar Pradhan)
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